

Appln. No. 09/773,172
Amndt dated July 19, 2004
Reply to Office Action of March 22, 2004
Docket No. 6169-212

IBM Docket No. BOC9-2000-0076

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the instant application:

Listing of Claims:

1 - 7. (Canceled)

8. (Previously Presented) A method for processing dual tone multi-frequency signals for use with a natural language understanding system, said method comprising:
- receiving a user input comprising dual tone multi-frequency signals;
 - determining at least one prosodic characteristic of the dual tone multi-frequency signals;
 - grouping selected ones of the dual tone multi-frequency signals according to said determining step; and
 - converting the dual tone multi-frequency signals to one of a plurality of different textual representations according to said grouping step.
9. (Previously Presented) The method of claim 8, further comprising:
- determining contextual information for the received user input; and
 - using the contextual information for performing said grouping and converting steps.
10. (Previously Presented) The method of claim 9, wherein the user input further comprises user speech.
11. (Previously Presented) The method of claim 8, wherein said contextual information is determined by a natural language understanding system and said grouping step is performed by a dual tone multi-frequency converter, such that said natural language understanding system provides the contextual information as feedback to the dual tone multi-frequency converter.

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12 - 18. (Canceled)

19. (Previously Presented) A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

receiving a user input comprising dual tone multi-frequency signals;
determining at least one prosodic characteristic of the dual tone multi-frequency signals;
grouping selected ones of the dual tone multi-frequency signals according to said determining step; and
converting the dual tone multi-frequency signals to one of a plurality of different textual representations according to said grouping step.

20. (Previously Presented) The machine readable storage of claim 19, further comprising:

determining contextual information for the received user input; and
using the contextual information for performing said grouping and converting steps.

21. (Previously Presented) The machine readable storage of claim 20, wherein the user input further comprises user speech.

22. (Previously Presented) The machine readable storage of claim 19, wherein said contextual information is determined by a natural language understanding system and said grouping step is performed by a dual tone multi-frequency converter, such that said natural language understanding system provides the contextual information as feedback to the dual tone multi-frequency converter.

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23. (Currently Amended) A system for converting dual tone multi-frequency signals into text equivalents for use with a natural language understanding system, said system comprising:

an interactive voice response unit for receiving user inputs comprising user spoken utterances and dual tone multi-frequency signals;

a dual tone multi-frequency converter configured to determine at least one prosodic characteristic of the dual tone multi-frequency signals, group selected ones of the dual tone multi-frequency signals according to the prosodic characteristics, and convert the dual tone-multi frequency signals to one of a plurality of different text representations according to the groupings of dual tone multi-frequency signals; and

a natural language understanding system for determining a meaning from text converted from said user spoken utterances and said text ~~equivalents~~ representations.

24. (Original) The system of claim 23, further comprising:

a speech recognition system for converting said user spoken utterances to said text.

25. (Original) The system of claim 24, further comprising:

a collator for collating said text converted from said user spoken utterances and said text equivalents.

26. (Previously Presented) The system of claim 23, wherein said natural language understanding system determines contextual information for the user inputs and provides the contextual information to the dual tone multi-frequency converter for use in grouping the selected ones of the dual tone multi-frequency signals and converting the dual tone multi-frequency signals to text equivalents.

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27. (Previously Presented) A system for converting dual tone multi-frequency signals into text equivalents for use with a natural language understanding system, said system comprising:

- means for receiving a user input comprising dual tone multi-frequency signals;
- means for determining at least one prosodic characteristic of the dual tone multi-frequency signals;
- means for grouping selected ones of the dual tone multi-frequency signals according to said determining step; and
- means for converting the dual tone multi-frequency signals to one of a plurality of different textual representations according to said grouping step.

28. (Previously Presented) The system of claim 27, further comprising:
means for determining contextual information for the received user input; and
means for using the contextual information for performing said grouping and converting steps.

29. (Previously Presented) The system of claim 28, wherein the user input further comprises user speech.

30. (Previously Presented) The system of claim 27, wherein said means for determining contextual information provide the contextual information to said means for grouping and said means for converting.

31. (Previously Presented) The method of claim 8, said determining step further comprising measuring a time period between at least two of the dual tone multi-frequency signals.

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32. (Previously Presented) The machine readable storage of claim 19, said determining step further comprising measuring a time period between at least two of the dual tone multi-frequency signals.

33. (Previously Presented) The system of claim 23, wherein said the at least one prosodic characteristic is determined by measuring a time period between at least two of the dual tone multi-frequency signals.

34. (Previously Presented) The system of claim 27, said means for determining further comprising means for measuring a time period between at least two of the dual tone multi-frequency signals.